

JC957 U.S. PTO
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PATENT
Attorney Docket No. H 4325

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF EXPRESS MAIL (37 CFR § 1.10)

I HEREBY CERTIFY THAT THIS PAPER OR FEE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE, EXPRESS MAIL POST OFFICE TO ADDRESSEE" UNDER 37 CFR § 1.10, BEARING EXPRESS MAIL LABEL NO EE219526916US, ON THIS 22nd DAY OF NOVEMBER, 2000, AND IS ADDRESSED TO COMMISSIONER FOR PATENTS, BOX PATENT APPLICATION, WASHINGTON, D C 20231

JC825 U.S. PTO
09/718943
11/22/00

BY James M. Olsen
JAMES M. OLSEN

In re Application of:)
)
Thomas GASSENMEIER et al.)
)
Serial No.: Unassigned)
)
Filed: November 22, 2000)
)
For: PROCESS FOR THE PRODUCTION OF)
PARTICULATE DETERGENTS)

Group Art Unit: Unassigned
Examiner: Unassigned

Commissioner for Patents
Box Patent Application
Washington, D.C. 20231

UTILITY PATENT APPLICATION TRANSMITTAL UNDER 37 C.F.R. § 1.53(b)

APPLICATION ELEMENTS

- 1. ☒ Fee Transmittal Form (*Submit an original, and a duplicate for fee processing*)
- 2. ☒ Specification [Total Pages 9]
- 3. ☐ Drawings (35 U.S.C. § 113) [Total Sheets]
- 4. ☒ Combined Declaration and Power of Attorney [Total Pages 4]
 - a. ☒ Unexecuted
 - b. ☐ Copy from prior application (37 C.F.R. § 1.63(d))

(for continuation/divisional with Box 17 completed)

[Note Box 5 below]

i. ☐ **DELETION OF INVENTOR(S)**

Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d) and 1.33(b).

5. ☐ Incorporation By Reference (*usable if Box 4b is checked*)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. ☒ Applicants claim the right to priority under 35 U.S.C. § 119(a)-(d) or § 365(b) based on foreign application No. 199 57 036.1, filed in Germany, on November 26, 1999 (see attached Claim for Priority).
7. ☐ Nucleotide and/or Amino Acid Sequence Submission (*if applicable, all necessary*)
- a. ☐ Computer Readable Copy
- b. ☐ Paper Copy (identical to computer copy)
- c. ☐ Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. ☐ Assignment Papers (cover sheet & document(s)) [Total Pages]
9. ☐ 37 C.F.R. § 3.73(b) Statement
(*when there is an assignee*)
10. ☒ English Translation Document (*if applicable*)
11. ☐ Information Disclosure Statement (IDS) / PTO-1449 ☐ Copies of IDS citations
12. ☒ Preliminary Amendment
13. ☒ Return Receipt Postcard (*Should be specifically itemized*)

14. ☒ Claim for Priority

15. **CORRESPONDENCE ADDRESS**

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code label here)*

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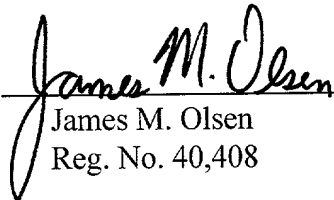
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Respectfully submitted,

CONNOLLY BOVE LODGE & HUTZ LLP

Dated: November 22, 2000

By:


James M. Olsen
Reg. No. 40,408

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
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Thomas GASSENMEIER et al.)
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Serial No.: Unassigned) Group Art Unit: Unassigned
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Filed: November 22, 2000) Examiner: Unassigned
)
For: PROCESS FOR THE PRODUCTION OF)
PARTICULATE DETERGENTS)

**Commissioner for Patents
Box Patent Application
Washington, D.C. 20231**

Sir:

FEE TRANSMITTAL LETTER

Enclosed is a new patent application. The items checked below are appropriate:

☒ The claims are calculated below, as amended in the Preliminary Amendment filed herewith:

	Number Filed		Number Extra	Rate	Basic Fee \$690.00
Total Claims	1	- 20 =	0	x \$18.00	\$0.00
Independent. Claims	1	- 3 =	0	x \$78.00	\$0.00
Multiple Dep. Claims				+ \$270.00	
Total =					\$690.00
Reduction by 1/2 for filing by small entity					- \$0.00
TOTAL FILING FEE					\$690.00

[X] A check for \$690.00 to cover the \$690.00 filing fee is enclosed.

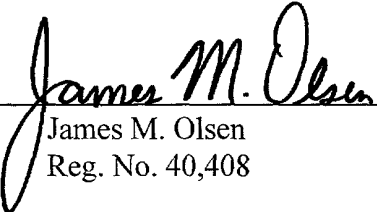
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Respectfully submitted,

CONNOLLY BOVE LODGE & HUTZ LLP

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PARTICULATE DETERGENTS)

**Commissioner for Patents
Box Patent Application
Washington, D.C. 20231**

Sir:

PRELIMINARY AMENDMENT

Prior to the examination of the above application, please amend this application as follows:

IN THE CLAIMS:

Please cancel claims 2-9, without prejudice or disclaimer of the subject matter thereof.

REMARKS

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 03-2775. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested and the fee should also be

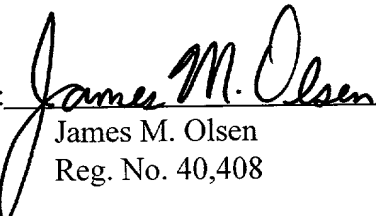
charged to our Deposit Account.

Respectfully submitted,

CONNOLLY BOVE LODGE & HUTZ LLP

Dated: November 22, 2000

By:


James M. Olsen
Reg. No. 40,408

Process for the Production of Particulate Detergents

This invention relates to a process for the production of particulate detergents.

Particulate detergents normally consist of a plurality of ingredients which, owing to mutual incompatibilities, are normally distributed over
5 several particulate components and incorporated thus in the detergent as a whole. Examples of such mutually incompatible ingredients are bleaching agent and bleach activator which, although intended to react with one another under in-use conditions, i.e. in aqueous solution, to develop the high bleaching performance required, must not react with one another
10 during storage because, otherwise, they would no longer be available for the intended purpose.

A less graphic example of the non-optimal co-operation of individual detergent ingredients arises out of their pH-dependent performance. Whereas enzymes and certain bleaching systems, for example, have their
15 optimum pH in the neutral or mildly acidic pH range, anionic surfactants and builders, for example, require an alkaline pH value in order fully to develop their effect. Speaking quite generally, both soil particles and most textile fibers develop an increasing number of negative charges with increasing pH value which results in increasing repulsion among them and
20 hence contributes to the desired washing result. For this reason, the washing of textiles has for ages been carried out with more or less alkaline wash liquors. The same applies to aqueous solutions for cleaning hard surfaces, for example in machine dishwashing.

A way out of this dilemma of different pH optima for different
25 ingredients is available via the time dimension of the washing/dishwashing process and consists in initially establishing a pH value at which certain

kg and μm , respectively.

If several particles rather than just one particle are to be treated at the same time, as is generally the case, m_p is understood to be the total weight of the particles to be treated and r their mean radius.

5 A particle to be treated in accordance with the invention may optionally contain all the ingredients of a detergent, i.e. it is possible by the process according to the invention to coat a preformed detergent. However, only at least some or all of the alkaline ingredients of such
10 case the alkaline ingredients may be present as particulate individual substances or several of the alkaline ingredients may be present in a single particle to be treated. The alkaline ingredients in question are preferably alkali metal silicates, alkali metal aluminosilicates, alkali metal phosphates, alkali metal carbonates, alkali metal perborates and alkali metal
15 percarbonates and mixtures thereof, sodium being the preferred alkali metal.

The process according to the invention is preferably carried out by applying the liquid or paste-form, optionally molten acidic component to the optionally heated particle consisting at least partly of an alkaline detergent
20 ingredient in a mixer or granulator. Particularly good coating is achieved when the acidic component is applied to the particle over a period of 5 to 20 minutes.

Although only a theoretical assumption to which applicants do not wish to be bound, the process according to the invention presumably
25 creates a particularly dense and comparatively sparingly or slowly water-soluble coating, which remains reliably impermeable after introduction into an aqueous system and hence allows the production of detergents with a stepped pH profile, through the neutralization reaction of the acidic coating material with the alkaline particle on the surface thereof. The particles
30 obtainable in accordance with the invention almost exclusively contain the

ingredients may also be present in several particulate components differing in their composition. The at least one other component used may also have such a solubility that, under the initially lower pH conditions, it releases as much as possible of the active ingredient present which, however, only develops its full effect after an increase in pH through the then higher alkalinity of the aqueous system surrounding it or which otherwise reacts with the alkali metal component then released. One example of this particular variant is a bleach activator which is soluble or made up to dissolve at a relatively low pH and which reacts with a bleaching agent released from the particle coated in accordance with the invention and, because it is already dissolved, is capable of developing a strong bleaching effect extremely quickly.

Examples

15 Example 1

1 kg of spheronized sodium percarbonate with a mean particle diameter of 400 μm were premixed cold with 25 g of stearic acid (flakes). The resulting premix was transferred to a commercially available plowshare mixer with horseshoe blades preheated to 90°C (casing temperature) in which it was reactively compounded for 20 mins. at speed stage 2 and at a measured product temperature of 80°C. The hot product was removed and, after cooling in the usual way, was used, for example, for the production of detergents.

25 Example 2

Quantities of 2.5 g and 1.5 g of stearic acid were added to quantities of 100 g of spheronized sodium percarbonate (mean particle diameter 1400 μm) in a glass beaker, followed by heating with stirring to around 80°C. After the molten stearic acid had been absorbed into the alkaline particles, the whole was reactively compounded for another 20 mins. at

CLAIMS

1. A process for the production of particulate detergents or premixes suitable for their production by application of a flowable acidic component to a particle consisting at least partly of an alkaline detergent ingredient,
5 the percentage of acidic component applied being governed by the formula $m_a/(m_c + m_p) = c \cdot 1/r$, where m_c is the weight of the acidic component, m_p is the weight of the particle, r is the radius of the particle and c is a factor of 0.5 length units to 20 length units.
2. A process as claimed in claim 1, characterized in that the particle
10 consisting at least partly of an alkaline detergent ingredient has a radius r of 100 μm to 1,000 μm .
3. A process as claimed in claim 1 or 2, characterized in that c is a factor of 5 length units to 10 length units.
4. A process as claimed in any of claims 1 to 3, characterized in that
15 the acidic component is solid at room temperature and the application of the flowable acidic component is carried out at a process temperature above room temperature.
5. A process as claimed in any of claims 1 to 4, characterized in that the acidic component is applied to the particle over a period of 5 minutes to
20 20 minutes.
6. A process as claimed in any of claims 1 to 5, characterized in that the alkaline detergent ingredient is selected from the alkali metal silicates, alkali metal aluminosilicates, alkali metal phosphates, alkali metal carbonates, alkali metal perborates and alkali metal percarbonates and
25 mixtures thereof.
7. A process as claimed in any of claims 1 to 6, characterized in that the acidic component is selected from mono- or dicarboxylic acids containing 10 to 22 carbon atoms, sulfuric acid monoalk(en)yl esters containing 10 to 20 carbon atoms, alk(en)yl or alkylaryl sulfonic acids
30 containing 10 to 20 carbon atoms, polymeric polycarboxylic acids

Abstract

The invention relates to a process for the production of particulate detergents or premixes suitable for their production by application of a flowable acidic component to a particle consisting at least partly of an alkaline detergent ingredient, the percentage of acidic component applied being governed by the formula $m_a/(m_c + m_p) = c \cdot 1/r$, where m_c is the weight of the acidic component, m_p is the weight of the particle, r is the radius of the particle and c is a factor of 0.5 length units to 20 length units.

Type a plus sign (+) inside this box - ☐

0010/PTO
Rev. 6/95

U.S. Department of Commerce
Patent and Trademark Office

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION

☒ Declaration Submitted with Initial Filing OR ☐ Declaration Submitted after Initial Filing

Attorney Docket
Number

H 4325

First Named
Inventor

GASSENMEIER, Thomas

COMPLETE IF KNOWN

Application Number

Filing Date

Group Art Unit

Examiner Name

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

PROCESS FOR THE PRODUCTION OF PARTICULATE DETERGENTS

the specification of which

(Title of the Invention)

☒ is attached hereto

OR

☐ was filed on (MM/DD/YYYY) as United States Application Number or PCT International

Application Number and was amended on (MM/DD/YYYY) (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES NO
199 57 036.1	Germany	11/26/1999	<input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority sheet attached hereto:

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	Additional provisional application numbers are listed on a supplemental priority sheet attached hereto.
		<input type="checkbox"/>

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DECLARATION

Page 2

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code §112.1 acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority sheet attached hereto.

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

☐ Firm Name Customer Number or label

OR

☒ List Attorney(s) and/or agent(s) name and registration number below:

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Wayne C. Jaeschke Glenn E. J. Murphy Stephen D. Harper	21,062 33,539 33,243	See supplement sheet attached.	

☒ Additional attorney(s) and/or agent(s) named on a supplemental sheet attached hereto.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor:		<input type="checkbox"/> A petition has been filed for this unsigned							
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<input checked="" type="checkbox"/> Additional inventors are being named on supplemental sheet(s) attached hereto									

DECLARATION**ADDITIONAL INVENTOR(S)
Supplemental Sheet**

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☐

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Authority☐

Additional inventors are being named on supplemental sheet(s) attached hereto

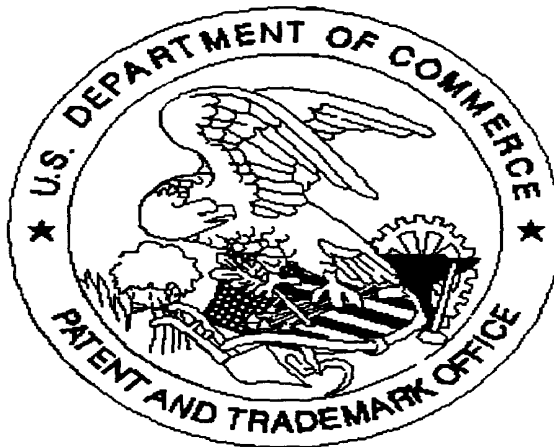
Attorney Docket Number: H 4325
First Named Inventor: GASSENMEIER, Thomas
Title:

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